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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/552,252	04/18/2000	Myeong-Je Cho	5830-3	3070

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EXAMINER

HELMER, GEORGIA L

ART UNIT PAPER NUMBER

1638

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/552,252

Applicant(s)

LEMAUX ET AL.

Examiner

Georgia L. Helmer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Status of the Claims

1. The Office acknowledges receipt of Applicants Response, dated 26 January 2004, including the Declaration of Myeong-Je Cho, dated 21 January 2004.
2. Applicant has amended claims 1, 11, and 32. Claims 1-8 and 10-42 are pending, and are examined in the instant action.
3. This action is made FINAL necessitated by Applicant's amendment.
4. All rejections not addressed below have been withdrawn.
5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112-second paragraph

6. Claims 25-42 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, for reasons of record, which are repeated in part below.

It is unclear whether "a cell of green regenerative tissue" means the cell is obtained from green regenerative tissue or the cell comprises green regenerative tissue. It is suggested that the above phrase be amended to "a plant cell".

Applicant traversed, stating primarily that the phrase "green regenerative tissue" has been amended to "a plant cell of green regenerative tissue".

Applicant's traversal was considered and found unpersuasive because Applicant's amendment addresses one issue, the "cell" issue. However, what is lacking is any teaching of how to differentiate "green" tissue from "nongreen" tissue. In plant cell and

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tissue culture, tissue is produced which is often a yellowish or yellow green color. This is especially true of callus. How does one distinguish yellow from green, when the various colors form a continuum, and not a dichotomy? This issue caused the Office to interpret "green regenerative tissue" as "callus tissue" in the 35 USC 102 (b) of the initial Office Action.

Applicant has not set forth a working definition of "green regenerative tissue"; various qualities of green regenerative tissue are recited: it may be referred to as green callus tissue (specification p.2 –p. 3 line 1). Furthermore, dim light permits one to "screen for green portions of the callus (for barley, for example; yellow-green for wheat) which are more likely to be regenerable" (specification p. 4 lines 24-28). Applicant further states that "callus quality (color and morphology) was assessed microscopically 2-3 weeks after initial callus induction; for morphology, a score of +4 (highest quality) was given to shiny, compact, nodular callus, and as score of +1 was given to soft, friable callus. Color was judged from slightly brown-colored callus (+4) to white (+1)". See specification p. 17, last ¶. No teaching of where green callus would fall on the recited color scale was given.

The Declaration of Myeong-Je Cho.

7. The Declaration of Myeong-Je Cho has been thoroughly considered and is found to be unpersuasive. The Declaration includes one attached figure, having 5 panels of photographic material.

The Declaration (p. 2 ¶ 4, line 3) states that "green regenerative tissue is a term we came up with to describe a particular tissue type that is morphologically distinct from

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callus tissue as shown in Panels A and E of the attached Figure. Cho goes on to state that "Panel A shows two month old normal embryogenic tissue of Galena (i.e. callus produced by a standard method similar to that of Wan and Lemaux (Plant Physiology, 1994). Panel B shows four month old green highly regenerative tissue of Galena (i.e. green regenerative tissue produced by the method of the present claimed invention." and that "the tissue of Panel B is a distinctly different color and appearance from the tissue in Panel A (see also Panel E)". Cho further states (Declaration, page 2, ¶ 6, line 1) that the green regenerative tissue of Galena was initiated on DBC2 medium (Panel E) and maintained on DBC3 medium (Panel B).

8. Applicant's traversal is unpersuasive. The plant material of Panel E, described as green regenerative tissue, shows non-green tissue, green tissue, partially green tissue and yellow tissue material. Applicant does not specify whether all tissues were transferred and maintained as described as above, or whether only some of the tissues were used. If only certain tissues were used, which ones?

9. Applicant traverses saying primarily that further more, Panel C, described as "showing plant regeneration from the callus tissue of Panel A, shows no regeneration of green plants". Applicant's traversal is unpersuasive, in part. Panel C shows green tissue; though not apparently green shooting tissue.

The Declaration of Cho fails to provide the identifiable components of a green regenerative tissue. Even after consideration of the Declaration, one would not be reasonably apprised of what components, having what qualities, are necessary and sufficient to constitute green regenerative tissue.

Rejections - 35 USC § 102

10. Claims 1-6 and 10-16 are rejected under 35 USC 102 (b) as being anticipated by Wan, Y et al (Plant Physiol 104: 37-48 (1994)). To the extent that this is a new rejection, it is necessitated by Applicant's amendment.

Wan teaches a method for producing a transformed plant introducing a nucleic acid, pBARGUS (p. 38, last full ¶) into a Golden Promise barley cell (p. 38 2nd full ¶) culturing the transformed barley cell under dim light of approximately 10-30 μ E on an medium containing 1 mg/l indoleacetic acid and 0.2 mg/l kinetin (p. 38, ¶ bridging 1st and 2nd column) to produce a transformed plant (p. 39, last full ¶, column 1).

Applicant does not specifically recite “for a time sufficient to promote proliferation and formation of a transformed structure competent to regenerate from said transformed plant cell, thereby promoting proliferation and formation of a transformed structure”. However since no time period is specified and a transformed plant is successfully produced, it would appear that the conditions of Wan are the same as recited by the Applicant.

The claimed invention is drawn to light of “approximately 10-30 μ E” and since the metes and bounds of “approximately” are not defined, the claim is interpreted to encompass the light at 45-55 μ E (p. 39, last full ¶, column 1) of Wan.

Claim 6 is drawn to a the method where incubation medium contains copper at a concentration of about 0.1 μ M to about 50 μ M. Applicant's FGH* medium (p. 38, ¶ bridging 1st and 2nd column) is an Murashige and Skoog (MS) based medium. MS

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medium is 0.1 μ M in copper (Bhojwani, et. al., in Plant Tissue Culture, Elsevier, Amsterdam, 1983, pages 25-41 ,see Table 3.1 and 3.2 p. 29).

Wan also teaches growth on the selective medium containing BASTA (p. 38 last ¶ bridging to p. 39), bombardment preformed at about 1100 psi (p. 38 1st full ¶).

Accordingly Wan anticipates the claimed invention.

Claim Rejections - 35 USC § 103

11. Claims 1-8 and 10-42 are rejected under 35 USC 103 as being unpatentable over Wan, et. al. (Plant Physiol 104: 37-48 (1994)) as discussed above for claims 1-6 and 10-16 and further in view of Bhojwani et. al., in Plant Tissue Culture, Elsevier, Amsterdam, 1983, pages 25-41 ,see p. 31 "*carbon source*".

The teaching of Wan as discussed above. Wan does not teach Anza wheat, maize H99 or B73, rice Taipei 309, Rapido orchardgrass, tall fescue Ky31, red fescue 43F-93, creeping bentgrass Putter, or Kentucky bluegrass Kenblue. Claims 17-24 recite commercially available monocot cultivars. It would have been well within the means of one of ordinary skill in the art at the time the invention was made to use the teachings of Wan to transform and regenerate these commercially valuable cultivars with a reasonable expectation of success.

Wan does not teach medium with a maltose or sucrose as a carbon source. (Bhojwani, et. al., in Plant Tissue Culture, Elsevier, Amsterdam, 1983, pages 25-41 ,see p. 31 "*carbon source*". Bhojwani teaches plant grown medium comprising sucrose or

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maltose, and provides motivation use to use a sucrose or maltose as a carbon source, stating that it "is essential to add utilizable source of carbon to the culture medium".

Accordingly, it would have been prima facie obvious to one of ordinary skill in the art at the time of Applicant's invention, given the recognition of one of ordinary skill in the art of the value of a method of transforming agronomical important monocot crop plants, the use of the transformation procedure of as discussed above, and the value of using plant growth medium containing sucrose or maltose as a carbon source as described by Bhojwani, one of ordinary skill in the art would have been motivated to transform the commercially valuable cultivars using the carbon source of Bhojwani, to routinely transform and regenerate barley, with a reasonable expectation of success.

Remarks

12. No claims are allowed.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

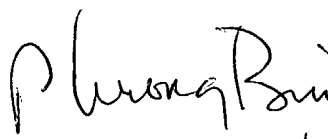
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Georgia L. Helmer whose telephone number is 571-272-0796. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on 571-272-0804. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Georgia L. Helmer, PhD
Patent Examiner
Art Unit 1638
April 27, 2004




PHUONG T. BUI
PRIMARY EXAMINER 4/28/04